





ESCOS Co.,Ltd.

## Phyll Phahol 34

### Report Preventive Maintenance Electrical Power 2024



บริษัท เอสคอส จำกัด (สำนักงานใหญ่) / Escos Co.,Ltd.  
เลขที่ 18/156 เวร่า บิสเน็ท ถ.ร่มเกล้า แขวงคลองสามประเวศ เขตลาดกระบัง กรุงเทพฯ 10520



ESCOS Co.,Ltd.

## สรุปผลการบำรุงรักษาเชิงป้องกัน

### 1 Transformer

1.1 TR : ปกติ

### 2 Main Distribution Board

2.1 MDB : ปกติ

### 3 Air Circuit Breaker

3.1 ACB MAIN : ปกติ

### 4 Capacitor Bank

4.1 Capacitor Bank : ปกติ

### 5 BUSDUCT

5.1 FLANK N ตู้ ก A : ปกติ



ESCOS Co.,Ltd.

## DISTRIBUTION TRANSFORMER REPORT

CUSTOMER : Phyll Phahol 34  
PROJECT SITE: พหลโยธิน 34

DEVICE NO : TR 1  
LOCATION : ELECTRICAL ROOM

### 1. TECHNICAL DATA

|                                   |                               |
|-----------------------------------|-------------------------------|
| Manufacturer : EKARAT             | Rated power : 1600 KVA.       |
| Rated voltage HV : 12000/24000 V. | Rated current HV : 38.49 A.   |
| Rated voltage LV : 416/240 V.     | Rated current LV : 2220.58 A. |
| Serial No : 62147652EE            | Standard : IEC 76             |
| Cooling type : AN                 | Vectergroup symbol : Dyn11    |
| Year : 2019                       | %Impedance : -                |
| Total mass : 4100 Kg.             | Temperature max : - °C        |

### 2. CONSTRUCTION CHECK

- 2.1 Seal and body
- 2.2 Bushing connection and cleaning
- 2.3 Termination and mounion
- 2.4 Earthing Terminal
- 2.5 Marker phase
- 2.6 Cooling system condition
- 2.7 Winding temperature

| Inspection results |      |  |          | Remark |
|--------------------|------|--|----------|--------|
| ✓                  | Pass |  | Not Pass |        |
| ✓                  | Pass |  | Not Pass |        |
| ✓                  | Pass |  | Not Pass |        |
| ✓                  | Pass |  | Not Pass |        |
| ✓                  | Pass |  | Not Pass |        |
| ✓                  | Pass |  | Not Pass |        |
| ✓                  | Pass |  | Not Pass |        |

### 3. INSULATION MEASUREMENT

| Connection      | Measurement of minute ( MΩ ) |           |       | Result |
|-----------------|------------------------------|-----------|-------|--------|
|                 | Test voltage (VDC)           | Should be | Value |        |
| Pri. To Sec     | 5000                         | ≥ 500     | 37600 | Passed |
| Pri.-Grounding. | 5000                         | ≥ 500     | 51900 | Passed |
| Sec.-Grounding. | 5000                         | ≥ 500     | -     |        |

#### Insulation resistance

STANDARD .

| Transformer coil rating (Volt) | Minimum DC Test voltage (Volt) | Minimum IR (MΩ) |
|--------------------------------|--------------------------------|-----------------|
| 0-600                          | 1000                           | 100             |
| 601-5000                       | 2500                           | 1000            |
| Greater than 5000              | 5000                           | 5000            |

### 6. GROUNDING RESISTANCE : STANDARD ≤ 5 Ω

Ground Resistance = 0.39 Ω

#### COMMENT :

#### 6.1 Insulation resistance test

Manufacturer : **Kyoritsu** Type : **KEW 3125A** Serial no. : **W0405399**

#### 6.2 Oil dielectric breakdown test

Manufacturer : **Megger** Type : **OTS 60PB** Serial no. : **081008/3986**





ESCOS Co.,Ltd.

## High voltage switch gear

|                                  |  |  |  |
|----------------------------------|--|--|--|
| Date : Tuesday, February 6, 2024 |  | Test By : MR.GAROON BOONMALERT                     |  |
| Customer : Phyll Phahol 34       |  |  |  |
| Project / Site : พหลโยธิน 34     |  |  |  |
| Cubicle Name : ชั้นล่าง          |  |  |  |
| Type :                           | <input type="checkbox"/> Fuse load break | <input checked="" type="checkbox"/> Ring main unit | Model : NE IDI                         |
|                                  | Manufacturer : SCHNEIDER                 |  | Rated : 630 A                          |
|                                  | Circuit Breaker Type -                   |  | CB Serial Number : -                   |
|                                  | Protection Relay : VIP 45                |  | RMU Serial Number : SB-2019-W16-1-0026 |

|   |                                     |                          |                                     |                                     |                                     |
|---|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| <b>Mechanism , Structure and Contact - Inspection</b> |                                     |                          |                                     | <input type="checkbox"/> To Perform | <input type="checkbox"/> No Request |
|   | Pass                                | Fail                     | Not possible to test                | ( Remark)                           |                                     |
| General Body Condition - Visual Check                 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                     |                                     |
| Mechanical Operation - On Position                    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                     |                                     |
| Mechanical Operation - Off Position                   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                     |                                     |
| Spring Charging Indicator - Functional Check          | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                     |                                     |
| On/Off Status Indicator - Functional Check            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                     |                                     |
| Draw in - Draw out - Function Check                   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |                                     |
| Motor charging - Test                                 | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |                                     |
| Termination and wiring - Check                        | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                     |                                     |
| Ground - Check  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | 0.5 Ω                               |                                     |

|   |        |                 |  |  |                                     |
|---|--------|-----------------|--|--|-------------------------------------|
| <b>Main Contact Resistance - Testing</b>                                    |        |                 |  | <input checked="" type="checkbox"/> To Perform | <input type="checkbox"/> No Request |
| Measuring Device (Testing by) ;   |        | Test Current    |  | : 100 ADC                                      |                                     |
| Pole  | Status | Resistance (μΩ) |  | ( Remark)                                      |                                     |
| Phase A   |        |                 |  |  |                                     |
| Phase B   |        |                 |  |  |                                     |
| Phase C   |        |                 |  |  |                                     |
| Testing Result; <input type="checkbox"/> Pass <input type="checkbox"/> Fail |        |                 |  |  |                                     |

|  |                  |                     |                    |                    |  |                                     |
|--|------------------|---------------------|--------------------|--------------------|--|-------------------------------------|
| <b>Insulation resistance measurement - Testing</b>                                     |                  |                     |                    |                    | <input checked="" type="checkbox"/> To Perform | <input type="checkbox"/> No Request |
| Measuring Device (Testing by) ;  |                  | Test Voltage        |                    | : 2500-5000 VDC    |  |                                     |
| Test Connection  |                  | Phase L1 (-L2) (GΩ) | Phase L2 (-L3)(GΩ) | Phase L3 (-L1)(GΩ) |  |                                     |
| Close Status   | Phase - Ground   | > 5000              | > 5000             | >5000              |  |                                     |
| Close Status   | Phase - Phase( ) | > 5000              | > 5000             | >5000              |  |                                     |
| Close Status   | Top - Bottom     | > 5000              | > 5000             | >5000              |  |                                     |
| Testing Result; <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail |                  |                     |                    |                    |  |                                     |

|  |                   |                                     |                          |           |  |                                     |
|--|-------------------|-------------------------------------|--------------------------|-----------|--|-------------------------------------|
| <b>Accessories - Testing</b>                 |                   |                                     |                          |           | <input checked="" type="checkbox"/> To Perform | <input type="checkbox"/> No Request |
|  | Operating Voltage | Pass                                | Fail                     | ( Remark) |  |                                     |
| Gear Charging Spring Motor - Electrical Test |                   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |           |  |                                     |
| Mechanical Operation - Close Position        |                   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |           |  |                                     |
| Mechanical Operation - Open Position         |                   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |           |  |                                     |
| Mechanical Interlock - Mechanical Test       |                   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |           |  |                                     |

|  |                                     |                                     |           |  |                                     |
|--|-------------------------------------|-------------------------------------|-----------|--|-------------------------------------|
| <b>Mechanism , Structure and Contact - Treatment</b> |                                     |                                     |           | <input checked="" type="checkbox"/> To Perform | <input type="checkbox"/> No Request |
|  | Done                                | No possible to perform              | ( Remark) |  |                                     |
| Main Contact - surface treatment                     | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |           |  |                                     |
| Arcing contact - surface treatment                   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |           |  |                                     |
| Pole Terminal - Cleaning                             | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |           |  |                                     |
| Gripping Jaw Contact - Cleaning                      | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |           |  |                                     |
| Body Structure - Cleaning                            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |           |  |                                     |
| Operating Mechanism - Lubication                     | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |           |  |                                     |
| Shafting Mechanism - Lubication                      | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |           |  |                                     |

REMARK:



ESCOS Co.,Ltd.

## Protection Relay Test Report

|                |                           |                |               |                      |         |
|----------------|---------------------------|----------------|---------------|----------------------|---------|
| Date           | Tuesday, February 6, 2024 |                | Test By       | MR.GAROON BOONMALERT |         |
| Customer       | : Phyll Phahol 34         |                |               |                      |         |
| Project / Site | : พหลโยธิน 34             |                |               |                      |         |
| Cubicle Name   | : ชั้นล่าง                |                |               |                      |         |
| Manufacturer   | Schneider Electric        |                | Load ID       | REL59913             |         |
| Type           | VIP 45                    |                | Serial Number | 2118470092           |         |
| Rate Voltage   | 22000 V                   | Rate Frequency | 50 Hz         | Rate Current         | 200/1 A |

| Relay setting  |      |                |     |
|----------------|------|----------------|-----|
| Curve          | I>   | Curve          | Io> |
| Normal Inverse | 45 A | Normal Inverse | 8 A |

| Time Delay Test        |                   |     |                     |       |                 |         |
|------------------------|-------------------|-----|---------------------|-------|-----------------|---------|
| Multiple Relay Setting | Current Injection |     | AS found Time (Sec) |       | Should Be (Sec) |         |
|                        | O/C               | E/F | O/C                 | E/F   | O/C             | E/F     |
| 2Is                    | 90                | 16  | 151.628             | 0.565 | 150-200         | 0.5-0.8 |
| 3Is                    | 140               |     | 24.156              |       | 20-30           |         |
|                        |                   |     |                     |       |                 |         |

Inst. Target operation O/C : Pass  
Time Target operation O/C : Pass  
Test trip function between VIP and Mitop Result : Pass

Test Result ☒ Pass (in accuracy) ☐ Clean and Check connection  
☐ No Pass (out Of accuracy)

Note : Bank cell ripresent option is not available or not use in your system

Remake :

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ESCOS Co.,Ltd.

## High voltage switch gear

|                                  |  |  |  |
|----------------------------------|--|--|--|
| Date : Tuesday, February 6, 2024 |  | Test By : MR.GAROON BOONMALERT                     |  |
| Customer : Phyll Phahol 34       |  |  |  |
| Project / Site : พหลโยธิน 34     |  |  |  |
| Cubicle Name : ชันบน             |  |  |  |
| Type :                           | <input type="checkbox"/> Fuse load break | <input checked="" type="checkbox"/> Ring main unit | Model : NE DI                          |
|                                  | Manufacturer : SCHNEIDER                 |  | Rated : 630 A                          |
|                                  | Circuit Breaker Type : -                 |  | CB Serial Number : -                   |
|                                  | Protection Relay : VIP 45                |  | RMU Serial Number : SB-2019-W15-6-0013 |

|   |                                     |                          |                                     |                                     |                                     |
|---|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| <b>Mechanism , Structure and Contact - Inspection</b> |                                     |                          |                                     | <input type="checkbox"/> To Perform | <input type="checkbox"/> No Request |
|   | Pass                                | Fail                     | Not possible to test                | ( Remark)                           |                                     |
| General Body Condition - Visual Check                 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                     |                                     |
| Mechanical Operation - On Position                    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                     |                                     |
| Mechanical Operation - Off Position                   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                     |                                     |
| Spring Charging Indicator - Functional Check          | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                     |                                     |
| On/Off Status Indicator - Functional Check            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                     |                                     |
| Draw in - Draw out - Function Check                   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |                                     |
| Motor charging - Test                                 | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |                                     |
| Termination and wiring - Check                        | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                     |                                     |
| Ground - Check  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | 0.046 Ω                             |                                     |

|   |        |                 |  |  |                                     |
|---|--------|-----------------|--|--|-------------------------------------|
| <b>Main Contact Resistance - Testing</b>                                    |        |                 |  | <input checked="" type="checkbox"/> To Perform | <input type="checkbox"/> No Request |
| Measuring Device (Testing by) ;   |        | Test Current    |  | : 100 ADC                                      |                                     |
| Pole  | Status | Resistance (μΩ) |  | ( Remark)                                      |                                     |
| Phase A   |        |                 |  |  |                                     |
| Phase B   |        |                 |  |  |                                     |
| Phase C   |        |                 |  |  |                                     |
| Testing Result; <input type="checkbox"/> Pass <input type="checkbox"/> Fail |        |                 |  |  |                                     |

|  |                  |                     |                    |                    |  |                                     |
|--|------------------|---------------------|--------------------|--------------------|--|-------------------------------------|
| <b>Insulation resistance measurement - Testing</b>                                     |                  |                     |                    |                    | <input checked="" type="checkbox"/> To Perform | <input type="checkbox"/> No Request |
| Measuring Device (Testing by) ;  |                  | Test Voltage        |                    | : 2500-5000 VDC    |  |                                     |
| Test Connection  |                  | Phase L1 (-L2) (GΩ) | Phase L2 (-L3)(GΩ) | Phase L3 (-L1)(GΩ) |  |                                     |
| Close Status   | Phase - Ground   | > 5000              | > 5000             | >5000              |  |                                     |
| Close Status   | Phase - Phase( ) | > 5000              | > 5000             | >5000              |  |                                     |
| Close Status   | Top - Bottom     | > 5000              | > 5000             | >5000              |  |                                     |
| Testing Result; <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail |                  |                     |                    |                    |  |                                     |

|  |                   |                                     |                          |           |  |                                     |
|--|-------------------|-------------------------------------|--------------------------|-----------|--|-------------------------------------|
| <b>Accessories - Testing</b>                 |                   |                                     |                          |           | <input checked="" type="checkbox"/> To Perform | <input type="checkbox"/> No Request |
|  | Operating Voltage | Pass                                | Fail                     | ( Remark) |  |                                     |
| Gear Charging Spring Motor - Electrical Test |                   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |           |  |                                     |
| Mechanical Operation - Close Position        |                   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |           |  |                                     |
| Mechanical Operation - Open Position         |                   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |           |  |                                     |
| Mechanical Interlock - Mechanical Test       |                   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |           |  |                                     |

|  |                                     |                                     |           |  |                                     |
|--|-------------------------------------|-------------------------------------|-----------|--|-------------------------------------|
| <b>Mechanism , Structure and Contact - Treatment</b> |                                     |                                     |           | <input checked="" type="checkbox"/> To Perform | <input type="checkbox"/> No Request |
|  | Done                                | No possible to perform              | ( Remark) |  |                                     |
| Main Contact - surface treatment                     | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |           |  |                                     |
| Arcing contact - surface treatment                   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |           |  |                                     |
| Pole Terminal - Cleaning                             | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |           |  |                                     |
| Gripping Jaw Contact - Cleaning                      | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |           |  |                                     |
| Body Structure - Cleaning                            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |           |  |                                     |
| Operating Mechanism - Lubication                     | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |           |  |                                     |
| Shafting Mechanism - Lubication                      | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |           |  |                                     |

REMARK:



ESCOS Co.,Ltd.

## Protection Relay Test Report

|                |                           |                |               |                        |         |
|----------------|---------------------------|----------------|---------------|------------------------|---------|
| Date           | Tuesday, February 6, 2024 |                | Test By       | : MR.GAROON BOONMALERT |         |
| Customer       | : Phyll Phahol 34         |                |               |                        |         |
| Project / Site | : พหลโยธิน 34             |                |               |                        |         |
| Cubicle Name   | : ชั้นบน                  |                |               |                        |         |
| Manufacturer   | Schneider Electric        |                | Load ID       | REL59913               |         |
| Type           | VIP 45                    |                | Serial Number | 2118470101             |         |
| Rate Voltage   | 22000 V                   | Rate Frequency | 50 Hz         | Rate Current           | 200/1 A |

| Relay setting  |      |                |     |
|----------------|------|----------------|-----|
| Curve          | I>   | Curve          | Io> |
| Normal Inverse | 45 A | Normal Inverse | 8 A |

| Time Delay Test        |                   |     |                     |       |                 |         |
|------------------------|-------------------|-----|---------------------|-------|-----------------|---------|
| Multiple Relay Setting | Current Injection |     | AS found Time (Sec) |       | Should Be (Sec) |         |
|                        | O/C               | E/F | O/C                 | E/F   | O/C             | E/F     |
| 2Is                    | 90                | 16  | 145.477             | 0.586 | 150-200         | 0.5-0.8 |
| 3Is                    | 140               |     | 24.752              |       | 20-30           |         |
|                        |                   |     |                     |       |                 |         |

Inst. Target operation O/C : Pass  
Time Target operation O/C : Pass  
Test trip function between VIP and Mitop Result : Pass

Test Result ☒ Pass (in accuracy) ☐ Clean and Check connection  
☐ No Pass (out Of accuracy)

Note : Bank cell ripresent option is not available or not use in your system

Remake :

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ESCOS Co.,Ltd.

## Low voltage cubicle Test Report

|                |                           |
|----------------|---------------------------|
| Date           | Tuesday, February 6, 2024 |
| Customer       | : Phyll Phahol 34         |
| Project / Site | : พหลโยธิน 34             |
| Cubicle Name   | : MDB                     |
| Location       | : Electrical Room         |

| <b>Cubicle - Inspection</b>                 | <input checked="" type="checkbox"/> To Perform | <input type="checkbox"/> No Request |                          |           |
|---|--|-------------------------------------|--------------------------|-----------|
|   | Pass   | Fail                                | Not possible to test     | ( Remark) |
| Inside and outside the switch board - Check | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |           |
| Use vacuum cleaner to clean - Check         | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |           |
| Ground - Check                              | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | 0.055 Ω   |

| <b>Bus bar - Inspection</b>                               | <input checked="" type="checkbox"/> To Perform | <input type="checkbox"/> No Request |                          |           |
|---|--|-------------------------------------|--------------------------|-----------|
|   | Pass   | Fail                                | Not possible to test     | ( Remark) |
| General Condition - Visual Check                          | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |           |
| The tightness of the bus bar supports - Check             | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |           |
| The tightness of main cable - Check                       | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |           |
| The tightness of all power and control connection - Check | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |           |
| The contact on main bus bar - Check                       | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |           |

| <b>Bus bar insulation resistance measurement - Testing</b> |                 | <input checked="" type="checkbox"/> To Perform | <input type="checkbox"/> No Request |
|--|-----------------|--|-------------------------------------|
| Measuring Device (Testing by) ;                            |                 | Test voltage                                   | : 500 VDC                           |
| Test Connection  | Resistance (MΩ) | ( Remark)                                      |                                     |
| Phase A - Phase B  | > 500 MΩ        |  |                                     |
| Phase B - Phase C  | > 500 MΩ        |  |                                     |
| Phase A - Phase C  | > 500 MΩ        |  |                                     |
| Phase A - Ground   | > 500 MΩ        |  |                                     |
| Phase B - Ground   | > 500 MΩ        |  |                                     |
| Phase C - Ground   | > 500 MΩ        |  |                                     |

Comment :

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ESCOS Co.,Ltd.

## Molded case circuit breaker Test Report

|                |                           |
|----------------|---------------------------|
| Date           | Tuesday, February 6, 2024 |
| Customer       | : Phyll Phahol 34         |
| Project / Site | : พหลโยธิน 34             |
| Cubicle Name   | : MDB                     |
| Location       | : Electrical Room         |

| <b>Mold case circuit breaker - Inspection</b> |                                     | <input checked="" type="checkbox"/> To Perform | <input checked="" type="checkbox"/> No Request |
|---|-------------------------------------|--|--|
|   | Pass                                | Fail   | Not possible to test                           |
| General Body Condition - Visual Check         | <input checked="" type="checkbox"/> | <input type="checkbox"/>                       | <input type="checkbox"/>                       |
| Mechanical Operation - On Position            | <input checked="" type="checkbox"/> | <input type="checkbox"/>                       | <input type="checkbox"/>                       |
| Mechanical Operation - Off Position           | <input checked="" type="checkbox"/> | <input type="checkbox"/>                       | <input type="checkbox"/>                       |
| On/Off Status Indicator - Functional Check    | <input checked="" type="checkbox"/> | <input type="checkbox"/>                       | <input type="checkbox"/>                       |
| Termination - Check                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>                       | <input type="checkbox"/>                       |

| <b>Mold case circuit breaker - Test</b> |                   |                  |              | <input checked="" type="checkbox"/> To Perform | <input type="checkbox"/> No Request |                          |
|---|-------------------|------------------|--------------|--|-------------------------------------|--------------------------|
| Trip Test - Mechanism test              |                   |                  |              | Pass   | Fail                                | Not possible to test     |
| MCCB Name                               | Rate current trip | Model            | Manufacturer |  |                                     |                          |
| MAIN                                    | 2500 A            | NW 25 H1         | SCHNEIDER    | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
| BRANCH                                  | 800 A             | GCR NS630-1600CB | SCHNEIDER    | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
| DBB                                     | 630 A             | NSX 630 N        | SCHNEIDER    | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
| DBC                                     | 630 A             | NSX 630 N        | SCHNEIDER    | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
| DBD                                     | 630 A             | NSX 630 N        | SCHNEIDER    | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
| LCD                                     | 50 A              | NSX 100 N        | SCHNEIDER    | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
| DBE                                     | 125 A             | NSX 160 N        | SCHNEIDER    | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
| SPARE                                   | 32 A              | NSX 100 N        | SCHNEIDER    | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
| SPARE                                   | 32 A              | NSX 100 N        | SCHNEIDER    | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
| BUSDUCT                                 | 630 A             | NSX 630 N        | SCHNEIDER    | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
| LCA                                     | 63 A              | NSX 100 N        | SCHNEIDER    | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
| LCB                                     | 50 A              | NSX 100 N        | SCHNEIDER    | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
| LCC                                     | 50 A              | NSX 100 N        | SCHNEIDER    | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
| CAPBANK                                 | 800 A             | NSX 800 N        | SCHNEIDER    | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
| EMDB                                    | 630 A             | NSX 630 N        | SCHNEIDER    | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|   |                   |                  |              | <input type="checkbox"/>                       | <input type="checkbox"/>            | <input type="checkbox"/> |
|   |                   |                  |              | <input type="checkbox"/>                       | <input type="checkbox"/>            | <input type="checkbox"/> |
|   |                   |                  |              | <input type="checkbox"/>                       | <input type="checkbox"/>            | <input type="checkbox"/> |
|   |                   |                  |              | <input type="checkbox"/>                       | <input type="checkbox"/>            | <input type="checkbox"/> |
|   |                   |                  |              | <input type="checkbox"/>                       | <input type="checkbox"/>            | <input type="checkbox"/> |
|   |                   |                  |              | <input type="checkbox"/>                       | <input type="checkbox"/>            | <input type="checkbox"/> |
|   |                   |                  |              | <input type="checkbox"/>                       | <input type="checkbox"/>            | <input type="checkbox"/> |
|   |                   |                  |              | <input type="checkbox"/>                       | <input type="checkbox"/>            | <input type="checkbox"/> |
|   |                   |                  |              | <input type="checkbox"/>                       | <input type="checkbox"/>            | <input type="checkbox"/> |
|   |                   |                  |              | <input type="checkbox"/>                       | <input type="checkbox"/>            | <input type="checkbox"/> |
|   |                   |                  |              | <input type="checkbox"/>                       | <input type="checkbox"/>            | <input type="checkbox"/> |
|   |                   |                  |              | <input type="checkbox"/>                       | <input type="checkbox"/>            | <input type="checkbox"/> |

Remark :

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ESCOS Co.,Ltd.

## Low voltage cubicle Test Report

|                |                           |
|----------------|---------------------------|
| Date           | Tuesday, February 6, 2024 |
| Customer       | : Phyll Phahol 34         |
| Project / Site | : พหลโยธิน 34             |
| Cubicle Name   | : EMDB                    |
| Location       | : Electrical Room         |

| <b>Cubicle - Inspection</b>                 | <input checked="" type="checkbox"/> To Perform | <input type="checkbox"/> No Request |                          |           |
|---|--|-------------------------------------|--------------------------|-----------|
|   | Pass   | Fail                                | Not possible to test     | ( Remark) |
| Inside and outside the switch board - Check | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |           |
| Use vacuum cleaner to clean - Check         | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |           |
| Ground - Check                              | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | 0.005 Ω   |

| <b>Bus bar - Inspection</b>                               | <input checked="" type="checkbox"/> To Perform | <input type="checkbox"/> No Request |                          |           |
|---|--|-------------------------------------|--------------------------|-----------|
|   | Pass   | Fail                                | Not possible to test     | ( Remark) |
| General Condition - Visual Check                          | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |           |
| The tightness of the bus bar supports - Check             | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |           |
| The tightness of main cable - Check                       | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |           |
| The tightness of all power and control connection - Check | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |           |
| The contact on main bus bar - Check                       | <input checked="" type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |           |

| <b>Bus bar insulation resistance measurement - Testing</b> |                 | <input checked="" type="checkbox"/> To Perform | <input type="checkbox"/> No Request |
|--|-----------------|--|-------------------------------------|
| Measuring Device (Testing by) ;                            |                 | Test voltage                                   | : 500 VDC                           |
| Test Connection  | Resistance (MΩ) | ( Remark)                                      |                                     |
| Phase A - Phase B  | > 500 MΩ        |  |                                     |
| Phase B - Phase C  | > 500 MΩ        |  |                                     |
| Phase A - Phase C  | > 500 MΩ        |  |                                     |
| Phase A - Ground   | > 500 MΩ        |  |                                     |
| Phase B - Ground   | > 500 MΩ        |  |                                     |
| Phase C - Ground   | > 500 MΩ        |  |                                     |

Comment :

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|                |                           |
|----------------|---------------------------|
| Date           | Tuesday, February 6, 2024 |
| Customer       | : Phyll Phahol 34         |
| Project / Site | : พหลโยธิน 34             |
| Cubicle Name   | : EMDB                    |
| Location       | : Electrical Room         |

| <b><i>Mold case circuit breaker - Inspection</i></b> | <input checked="" type="checkbox"/> To Perform | <input checked="" type="checkbox"/> No Request |
|--|--|--|
|  | Pass   | Fail   |
| General Body Condition - Visual Check                | <input checked="" type="checkbox"/>            | <input type="checkbox"/>                       |
| Mechanical Operation - On Position                   | <input checked="" type="checkbox"/>            | <input type="checkbox"/>                       |
| Mechanical Operation - Off Position                  | <input checked="" type="checkbox"/>            | <input type="checkbox"/>                       |
| On/Off Status Indicator - Functional Check           | <input checked="" type="checkbox"/>            | <input type="checkbox"/>                       |
| Termination - Check                                  | <input checked="" type="checkbox"/>            | <input type="checkbox"/>                       |

[illegible]

**Remark :**





ESCOS Co.,Ltd.

## Air Circuit Breaker's Function Test Report

|                         |                           |                   |                     |
|-------------------------|---------------------------|-------------------|---------------------|
| Date                    | Tuesday, February 6, 2024 |                   |                     |
| Customer                | : Phyll Phahol 34         |                   |                     |
| Project / Site          | : พหลโยธิน 34             |                   |                     |
| Cubicle Name            | : MDB                     |                   |                     |
| Manufacturer            | : SCHNEIDER               | Rate Current      | : 2500 A            |
| Circuit Breaker Type    | : NW25H1                  | ACB Serial Number | : 3153420502 4 5/12 |
| Protection Unit Release | : MICROLOGIC 6.0 E        | PR Serial Number  | : -                 |

| <b>Mechanism , Structure and Contact - Inspection</b> |                                     |                          |                                     | <input checked="" type="checkbox"/> To Perform | <input type="checkbox"/> No Request |
|---|-------------------------------------|--------------------------|-------------------------------------|--|-------------------------------------|
|   | Pass                                | Fail                     | Not possible to test                | ( Remark)                                      |                                     |
| General Body Condition - Visual Check                 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |  |                                     |
| Mechanical Operation - On Position                    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |  |                                     |
| Mechanical Operation - Off Position                   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |  |                                     |
| Spring Charging Indicator - Functional Check          | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |  |                                     |
| On/Off Status Indicator - Functional Check            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |  |                                     |
| Draw in - Draw out - Function Check                   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | FIXED TYPE                                     |                                     |
| Motor charging - Test                                 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |  |                                     |
| Termination and wiring - Check                        | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |  |                                     |
| Ground - Check  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |  |                                     |

| <b>Mechanism , Structure and Contact - Treatment</b> |                                     |                          |  | <input checked="" type="checkbox"/> To Perform | <input type="checkbox"/> No Request |
|--|-------------------------------------|--------------------------|--|--|-------------------------------------|
|  | Done                                | No possible to perform   |  | ( Remark)                                      |                                     |
| Arcing contact wear - Gap Test                       | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |  |                                     |
| Main Contact - surface treatment                     | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |  |                                     |
| Arcing contact - surface treatment                   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |  |                                     |
| Arcing Chamber - treatment                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |  |                                     |
| Pole Terminal - Cleaning                             | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |  |                                     |
| Gripping Jaw Contact - Cleaning                      | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |  |                                     |
| (Fixed Part of withdrawable version )                |                                     |                          |  |  |                                     |
| Body Structure - Cleaning                            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |  |                                     |
| Operating Mechanism - Lubication                     | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |  |                                     |
| Shafting Mechanism - Lubication                      | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |  |                                     |

**Comment :**

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ESCOS Co.,Ltd.

## Air Circuit Breaker's Function Test Report

| Date  | Tuesday, February 6, 2024 |                                     |  |                       |                     |
|---|---------------------------|-------------------------------------|--|-----------------------|---------------------|
| Customer  | : Phyll Phahol 34         |                                     |  |                       |                     |
| Project / Site  | : พหลโยธิน 34             |                                     |  |                       |                     |
| Cubicle Name  | : MDB                     |                                     |  |                       |                     |
| Manufacturer  | : SCHNEIDER               |                                     |  | Rate Current          | : 2500 A            |
| Circuit Breaker Type  | : NW25H1                  |                                     |  | ACB Serial Number     | : 3153420502 4 5/12 |
| Protection Unit Release   | : MICROLOGIC 6.0 E        |                                     |  | PR Serial Number      | : -                 |
| <b>Protection Unit Release - Testing</b> <input type="checkbox"/> To Perform <input type="checkbox"/> No Request                      |                           |                                     |  |                       |                     |
| Measuring Device (Testing by) ;   |                           |                                     | IEC 947-2/CEI 17-5                       |                       |                     |
| Function Test   | Setting Value             |                                     | Test Current ( A )<br>( From Test Unit ) | Tripping Time ( Sec ) | Remark              |
|   | Current                   | Time Curves                         |  |                       |                     |
| Long time   | 1                         |                                     |  |                       |                     |
| Long time delay   |                           | 12                                  | 14167                                    | 12.280                | <b>PASSED</b>       |
| Short time  | 4                         |                                     |  |                       |                     |
| Short time delay  |                           | 0.3                                 | 22500                                    | 0.421                 | <b>PASSED</b>       |
| Instantaneous   | 8                         |                                     | 31250                                    | 0.047                 | <b>PASSED</b>       |
| Ground fault  | B                         |                                     |  |                       |                     |
| Ground fault delay  |                           | 0.3                                 | 1280                                     | 0.255                 | <b>PASSED</b>       |
| Testing Result; <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail  |                           |                                     |  |                       |                     |
| Remark:   |                           |                                     |  |                       |                     |
| <b>Main Contact Resistance - Testing</b> <input checked="" type="checkbox"/> To Perform <input type="checkbox"/> No Request           |                           |                                     |  |                       |                     |
| Measuring Device (Testing by) ;   |                           | Test Current                        |  | : 100 ADC             |                     |
| Pole  | Status                    | Resistance (μΩ)                     |  | ( Remark )            |                     |
| Phase A   | ON                        | 39                                  |  |                       |                     |
| Phase B   | ON                        | 50                                  |  |                       |                     |
| Phase C   | ON                        | 55                                  |  |                       |                     |
| Testing Result; <input type="checkbox"/> Pass <input type="checkbox"/> Fail   |                           |                                     |  |                       |                     |
| <b>Insulation resistance measurement - Testing</b> <input checked="" type="checkbox"/> To Perform <input type="checkbox"/> No Request |                           |                                     |  |                       |                     |
| Measuring Device (Testing by) ;   |                           | Test Voltage                        |  | : 500 - 1000 VDC      |                     |
| Test Connection   |                           | Phase L1 (-L2) (GΩ)                 | Phase L2 (-L3)(GΩ)                       | Phase L3 (-L1)(GΩ)    |                     |
| Close Status  | Phase - Ground            | > 500                               | > 500                                    | > 500                 |                     |
| Close Status  | Phase - Phase( )          | > 500                               | > 500                                    | > 500                 |                     |
| Close Status  | Top - Bottom              | > 500                               | > 500                                    | > 500                 |                     |
| Testing Result; <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail  |                           |                                     |  |                       |                     |
| Remark:   |                           |                                     |  |                       |                     |
| <b>Accessories - Testing</b> <input checked="" type="checkbox"/> To Perform <input type="checkbox"/> No Request                       |                           |                                     |  |                       |                     |
|   | Operating Voltage         | Pass                                | Fail                                     | ( Remark )            |                     |
| Shunt Closing Release - Electrical Test   |                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>                 |                       |                     |
| Shunt Opening Release - Electrical Test   |                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>                 |                       |                     |
| Under Voltage Release - Electrical Test   |                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>                 |                       |                     |
| Electronic Time Delay - Electrical Test   |                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>                 |                       |                     |
| Gear Charging Spring Motor - Electrical Test  |                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>                 |                       |                     |
| Auxiliary Contact - Electrical Test   |                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>                 |                       |                     |
| Electrical Tripping Indicator - Electrical Test   | N/A                       | <input type="checkbox"/>            | <input type="checkbox"/>                 |                       |                     |
| Mechanical Interlock - Mechanical Test  | N/A                       | <input type="checkbox"/>            | <input type="checkbox"/>                 |                       |                     |
| Key Lock - Mechanical Test  | N/A                       | <input type="checkbox"/>            | <input type="checkbox"/>                 |                       |                     |
| Rack in/test/out device - Mechanical Test   | N/A                       | <input type="checkbox"/>            | <input type="checkbox"/>                 |                       |                     |

Comment: **BATTERY TRIP UNIT เสื่อมสภาพ**



ESCOS Co.,Ltd.

## LV Capacitor Bank Test Report

|  |                                      |
|--|--------------------------------------|
| Date <u>6 Feb 24</u>                   |                                      |
| Customer : <u>Phyll Phahol 34</u>      |                                      |
| Project / Site : <u>พหลโยธิน 34</u>    |                                      |
| Cubicle Name : <u>MDB</u>              |                                      |
|  |                                      |
| Manufacturer : <u>FRANKE</u>           | Total Capacity : <u>10 X 50 KVAR</u> |
| Capacitor Type : <u>GMKP440-3-30.3</u> | Serial Number : <u>-</u>             |
| Rate Voltage : <u>400 V</u>            | Rate Frequency : <u>50 Hz</u>        |
| Location : <u>MDB 1</u>                |                                      |

| Capacitor - Testing |                      |                  |                  |                  | <input checked="" type="checkbox"/> To Perform | <input checked="" type="checkbox"/> No Request |   |                        |   |
|---------------------|----------------------|------------------|------------------|------------------|--|--|---|------------------------|---|
| STEP                | Rating<br><br>(kVAR) | Capacitance :    |                  |                  | Resistance<br>Test<br>GΩ<br>1000VDC            | Remark   | Standard Current Voltage<br>Capacitance for Each Size |                        |   |
|                     |                      | C <sub>R-S</sub> | C <sub>S-T</sub> | C <sub>T-R</sub> | RST-G  |  | QC<br>Kvar<br>400V                                    | Normal<br>Current<br>A | Normal<br>C <sub>RS</sub> ,C <sub>ST</sub> ,C <sub>TR</sub><br>uF |
|                     |                      | I <sub>R</sub>   | I <sub>S</sub>   | I <sub>T</sub>   |  |  | 30  | 43.3                   | 295.5   |
| 1                   | 25x2                 | 525              | 527              | 525              |  |  | 40  | 57.7                   | 397.5   |
| 2                   | 25x2                 | 529              | 529              | 529              |  |  | 50  | 72.2                   | 499.5   |
| 3                   | 25x2                 | 529              | 549              | 529              |  |  | 75  | 108                    | 745.5   |
| 4                   | 25x2                 | 532              | 529              | 536              |  |  | 80  | 115                    | 795   |
| 5                   | 25x2                 | 532              | 527              | 526              |  |  | Criteria if capacitance less than 10%                 |                        |   |
| 6                   | 25x2                 | 528              | 528              | 535              |  |  | of normal value, It should be replaced                |                        |   |
| 7                   | 25x2                 | 530              | 530              | 530              |  |  | by new one  |                        |   |
| 8                   | 25x2                 | 530              | 532              | 530              |  |  | Instrument  |                        |   |
| 9                   | 25x2                 | 530              | 530              | 529              |  |  |   |                        |   |
| 10                  | 25x2                 | 523              | 528              | 530              |  |  |   |                        |   |
|                     |                      |                  |                  |                  |  |  |   |                        |   |
|                     |                      |                  |                  |                  |  |  |   |                        |   |
|                     |                      |                  |                  |                  |  |  |   |                        |   |
|                     |                      |                  |                  |                  |  |  |   |                        |   |
|                     |                      |                  |                  |                  |  |  |   |                        |   |

|                                    |   |
|------------------------------------|---|
| Magnetic Type : <u>EATON K0500</u> | Fuse Link / Fuse base : <u>NH00 - 125 A</u> |
| PFC Type : <u>FRANKE -GMKP</u>     | Circuit Breaker : <u>-</u>                  |
| Cable Size : <u>35 SQ.MM</u>       | Reactor : <u>-</u>                          |
| Recommendation :                   |   |
|                                    |   |
|                                    |   |

| Power Factor Controller - Testing <span style="float: right;"><input checked="" type="checkbox"/> To Perform <input type="checkbox"/> No Request</span> |                                     |                          |                               |
|---|-------------------------------------|--------------------------|-------------------------------|
| Power Factor Setting :  | Pass                                | Fail                     | Not possible to test (Remark) |
| PF Control - Test   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      |
| Manual - Test   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      |
| Magnetic Operation - Test   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      |

| General - Inspection <span style="float: right;"><input checked="" type="checkbox"/> To Perform <input type="checkbox"/> No Request</span> |                                     |                          |                               |
|--|-------------------------------------|--------------------------|-------------------------------|
|  | Pass                                | Fail                     | Not possible to test (Remark) |
| General Body Condition - Visual Check  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      |
| Insulation - Check   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      |
| Wiring cable & Connection - Check  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      |
| Ground - Check   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      |
| Termination - Check  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      |
| Magnetic Contactor - Check   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      |
| HRC Fuse - Check   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      |
| Power Factor Controller - Check  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      |

Comment :

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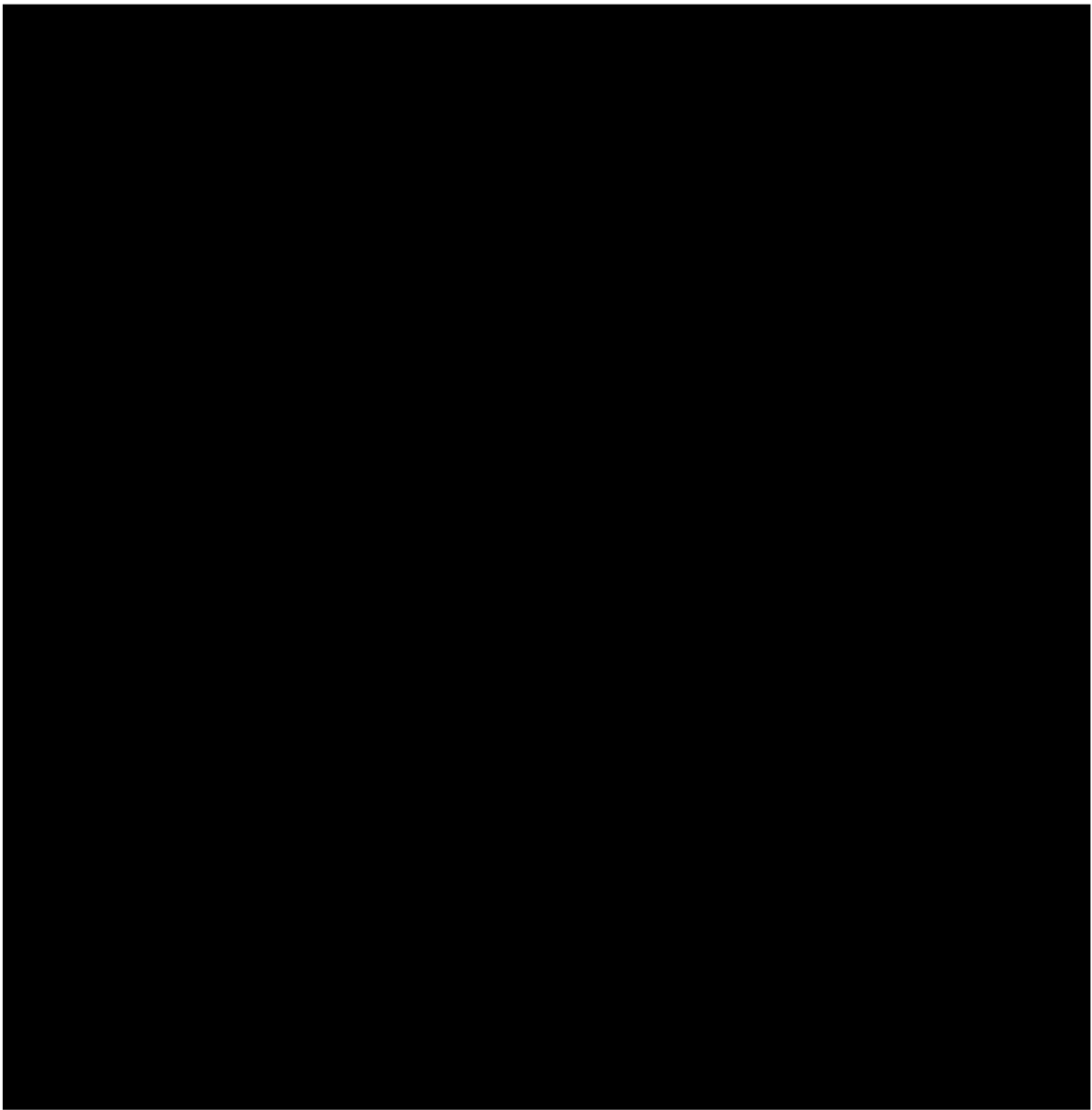


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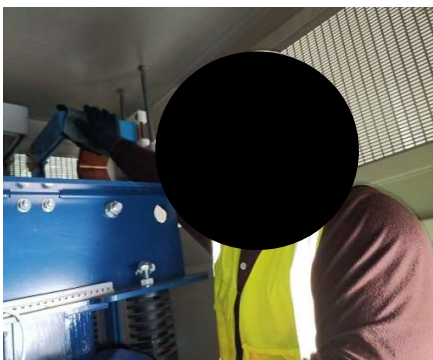
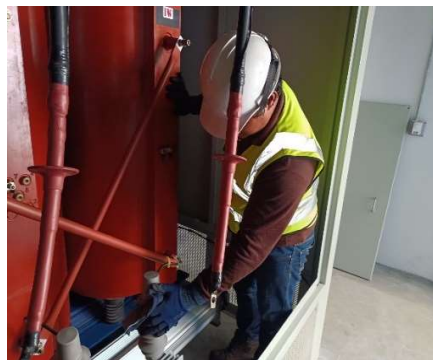
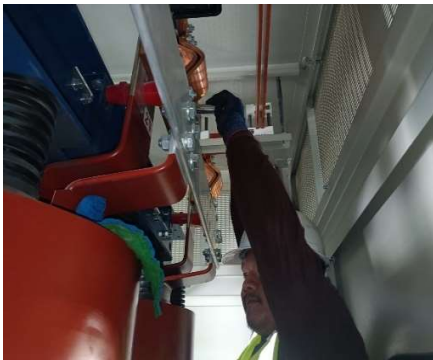
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## **PICTURE ACTIVITY**



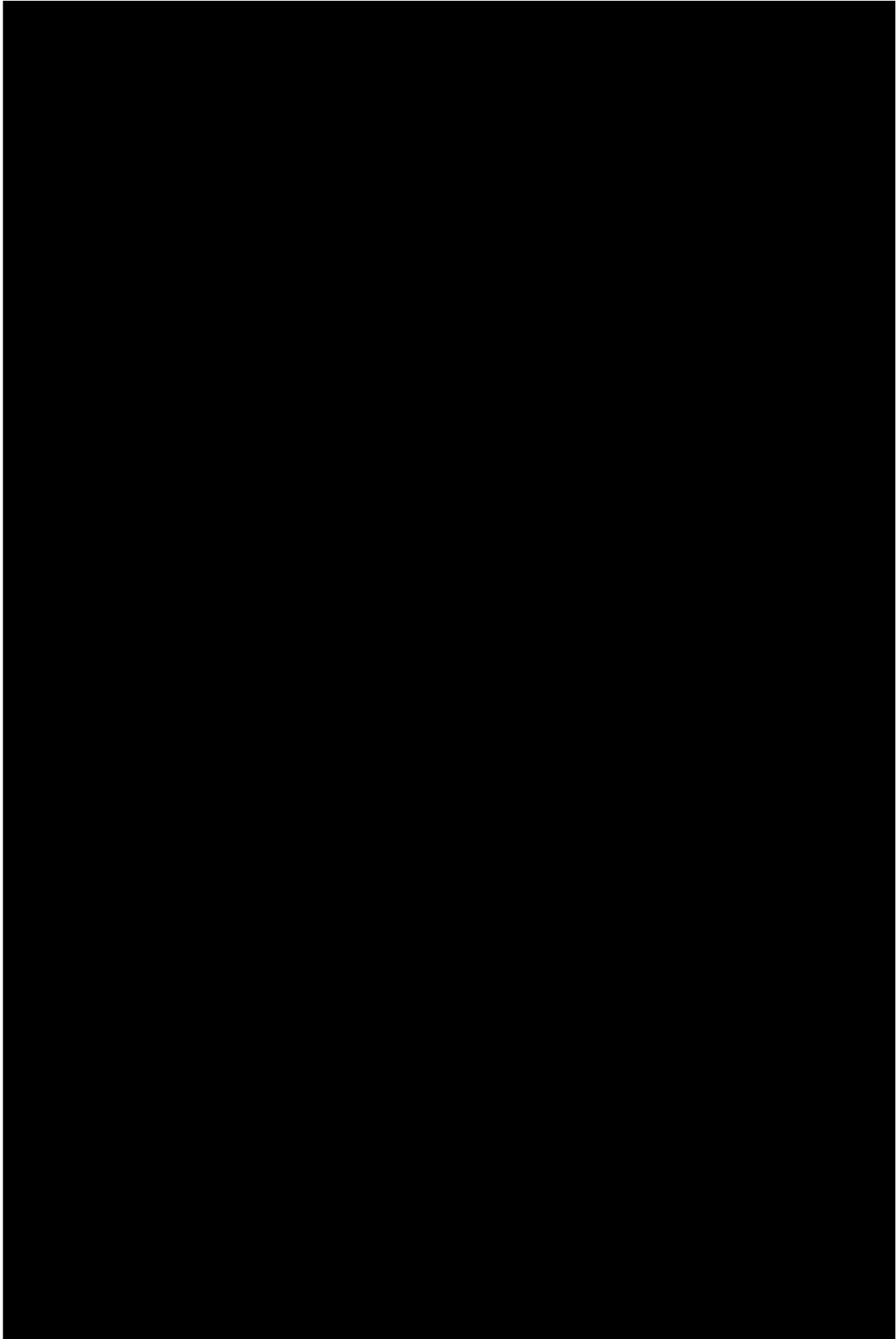


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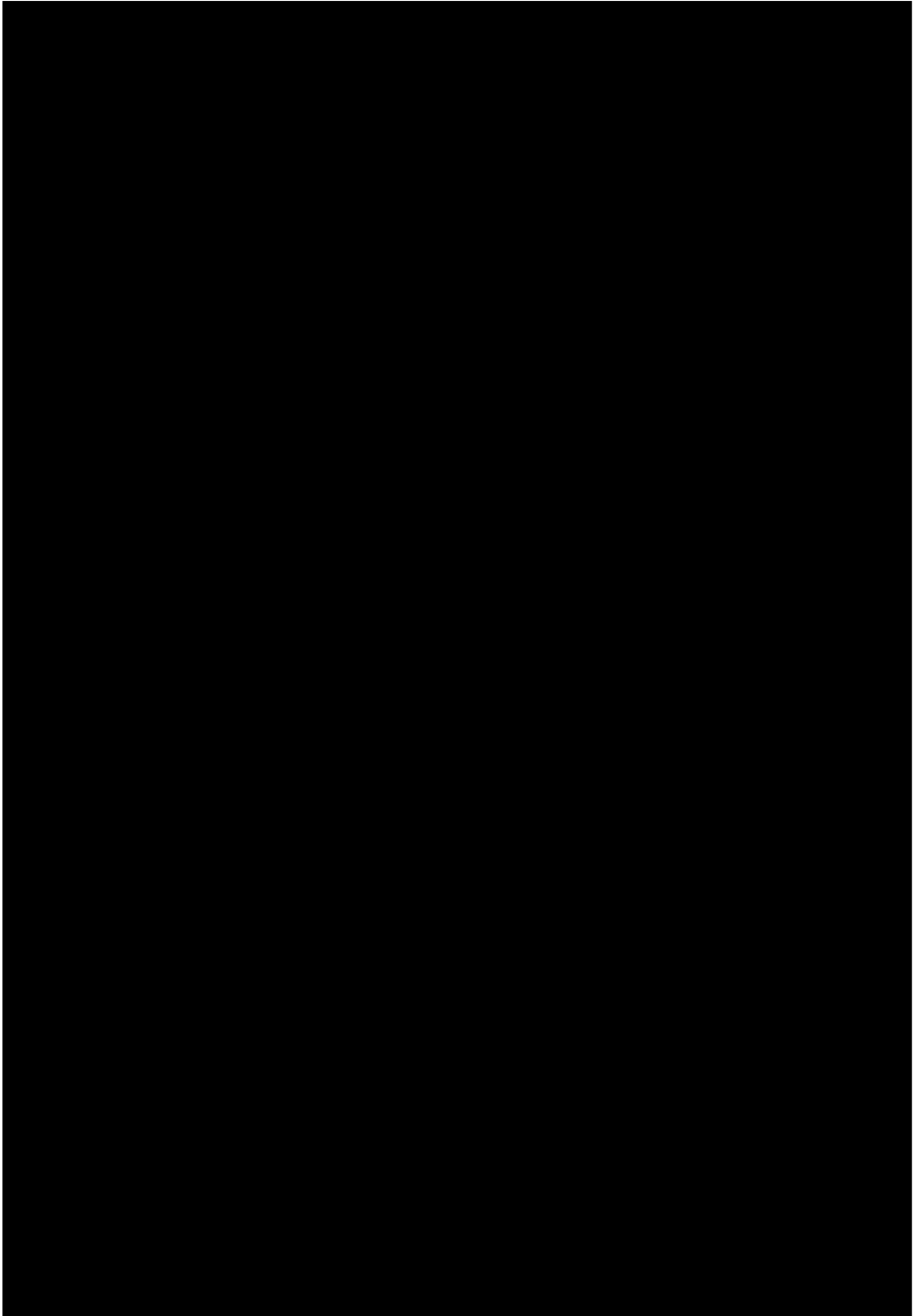


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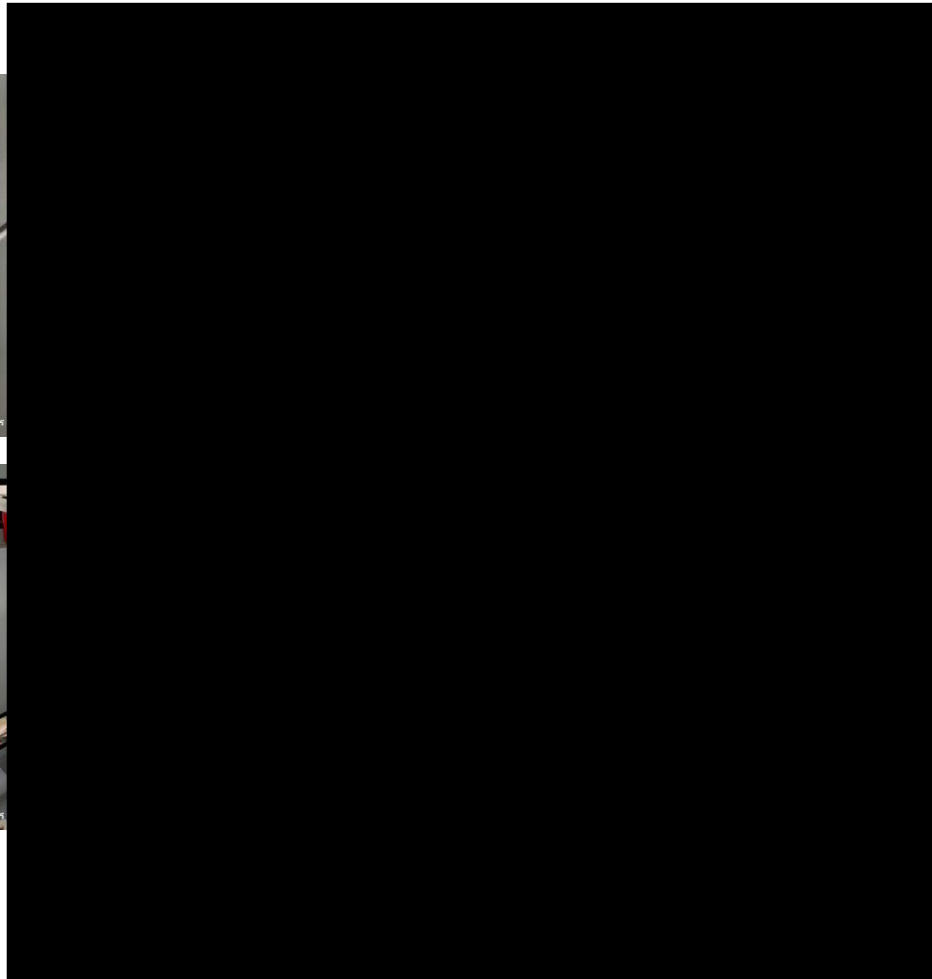
ESCOS Co.,Ltd.





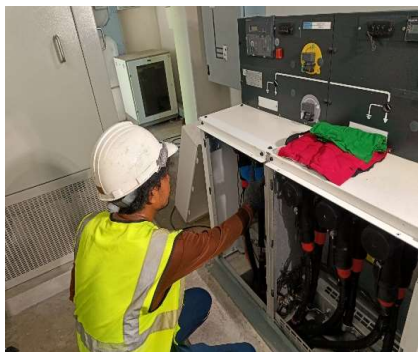
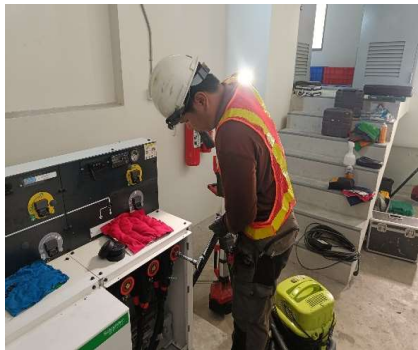


ESCOS Co.,Ltd.



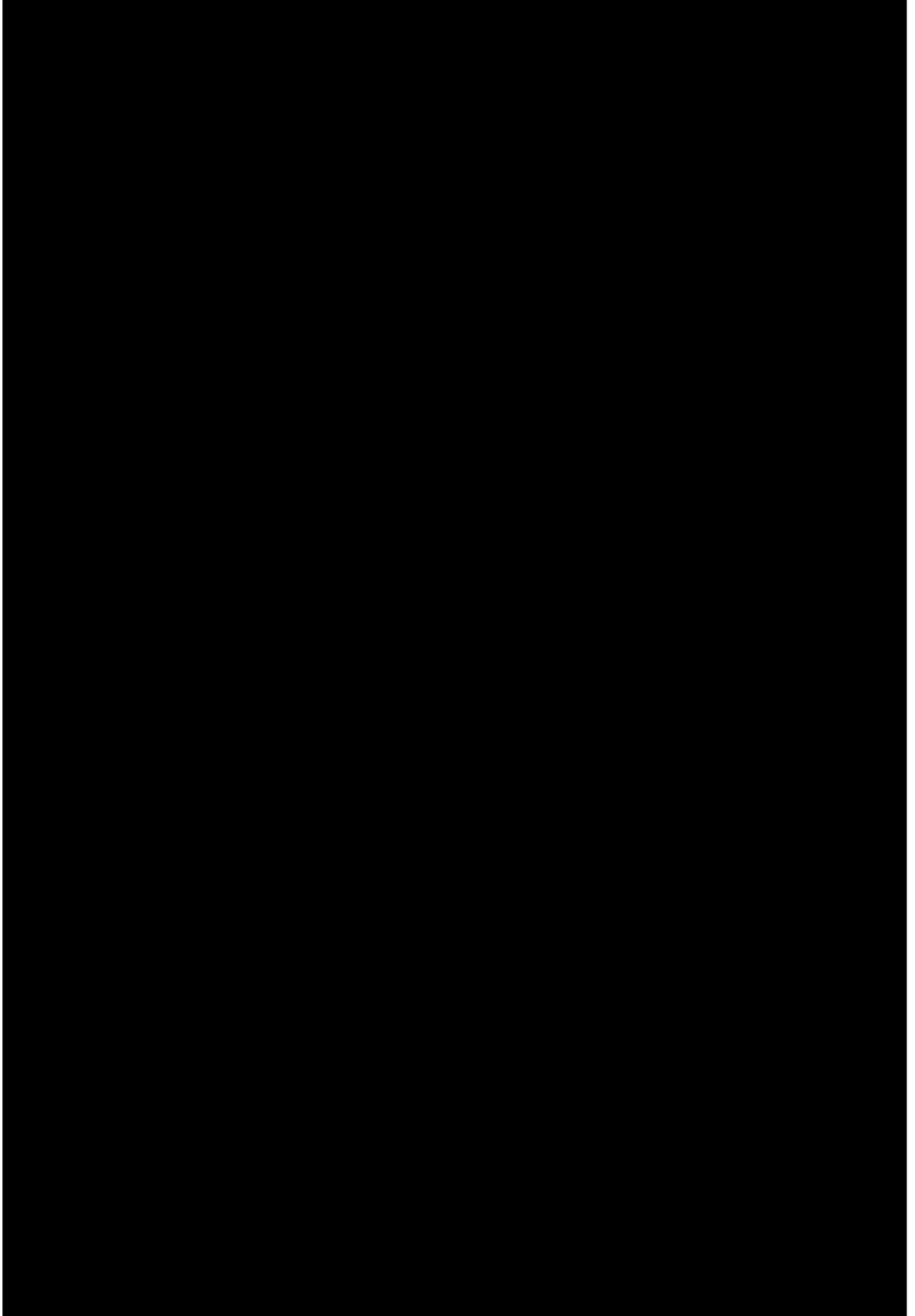


ESCOS Co.,Ltd.



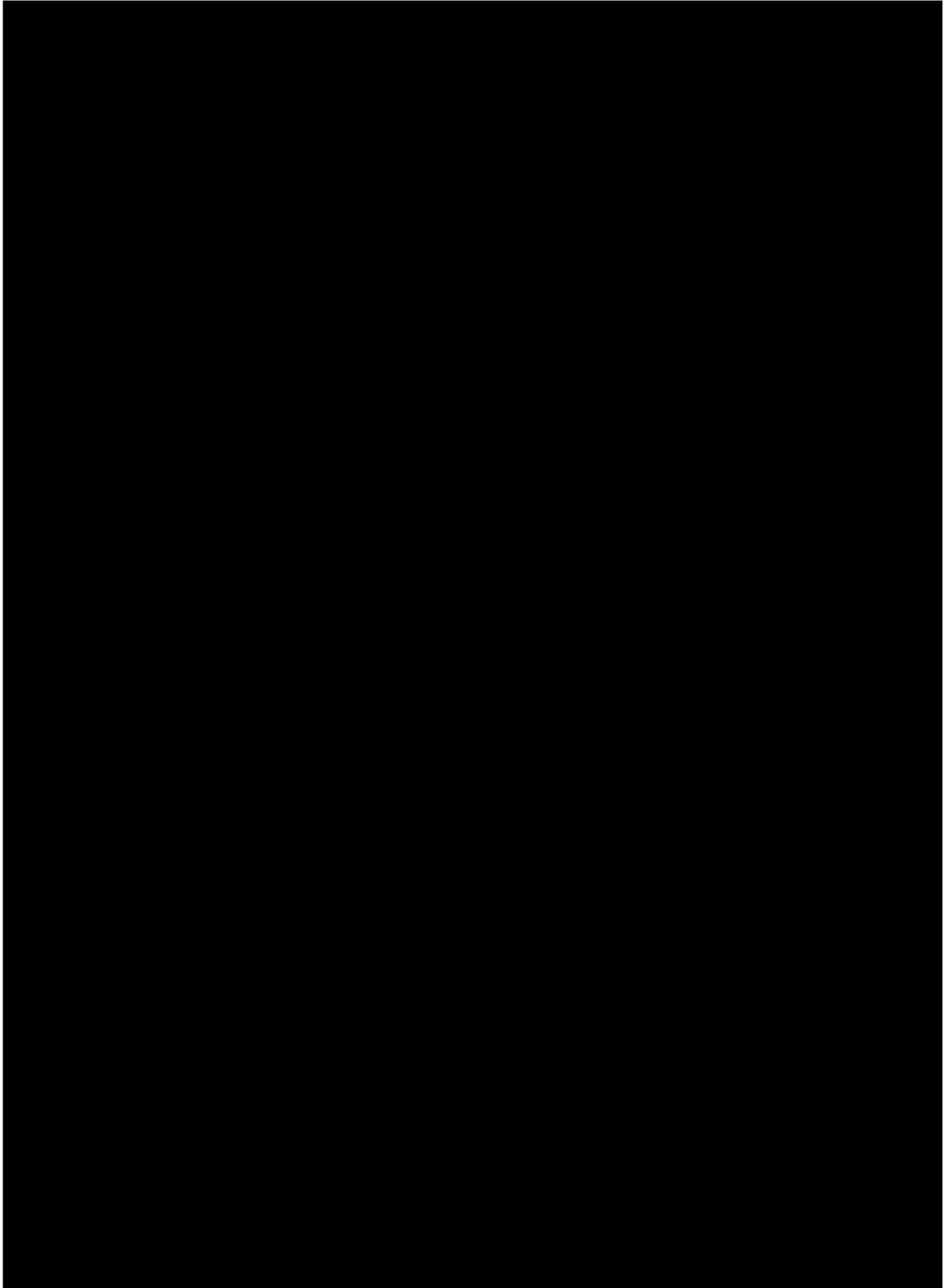


ESCOS Co.,Ltd.



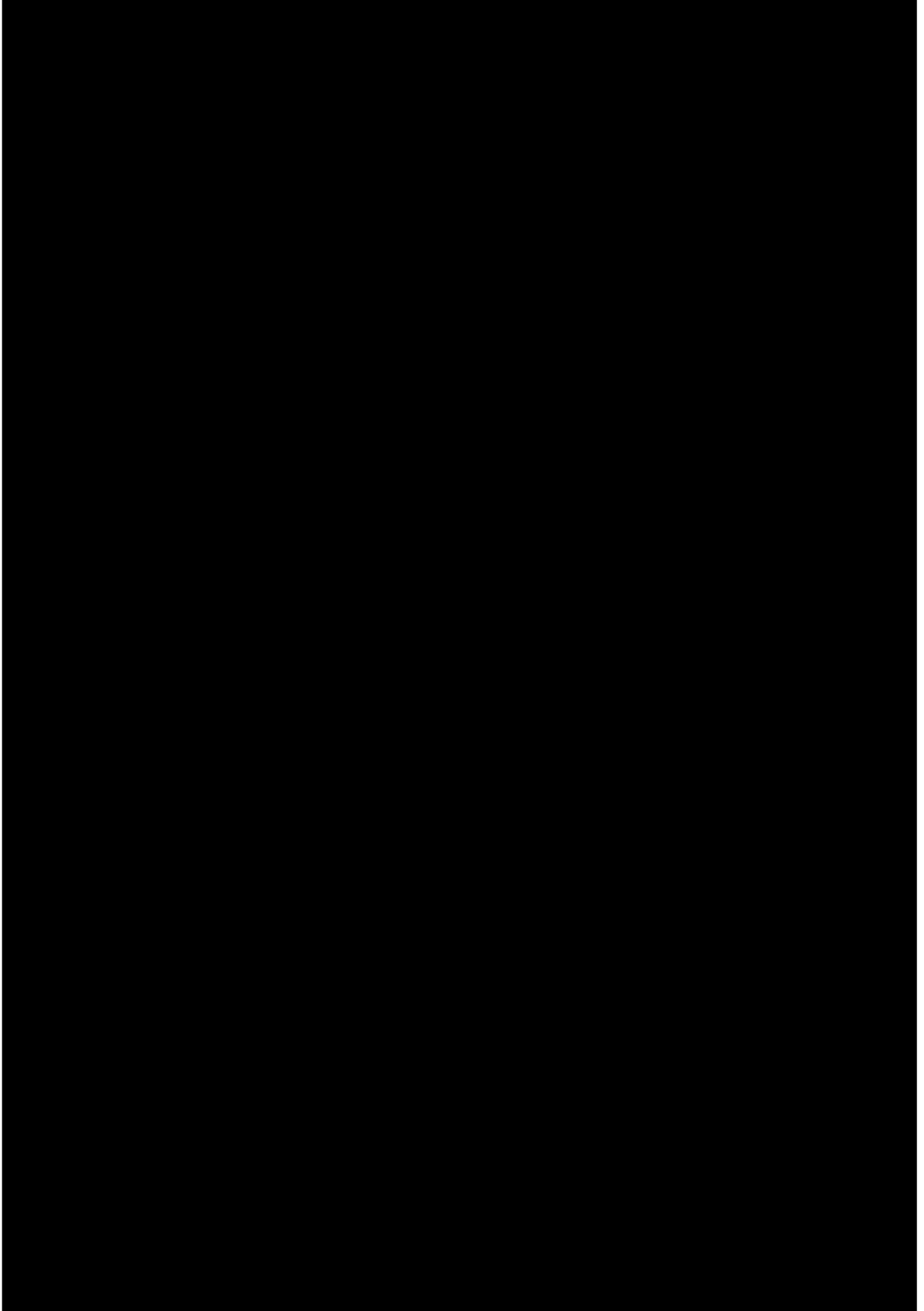


ESCOS Co.,Ltd.



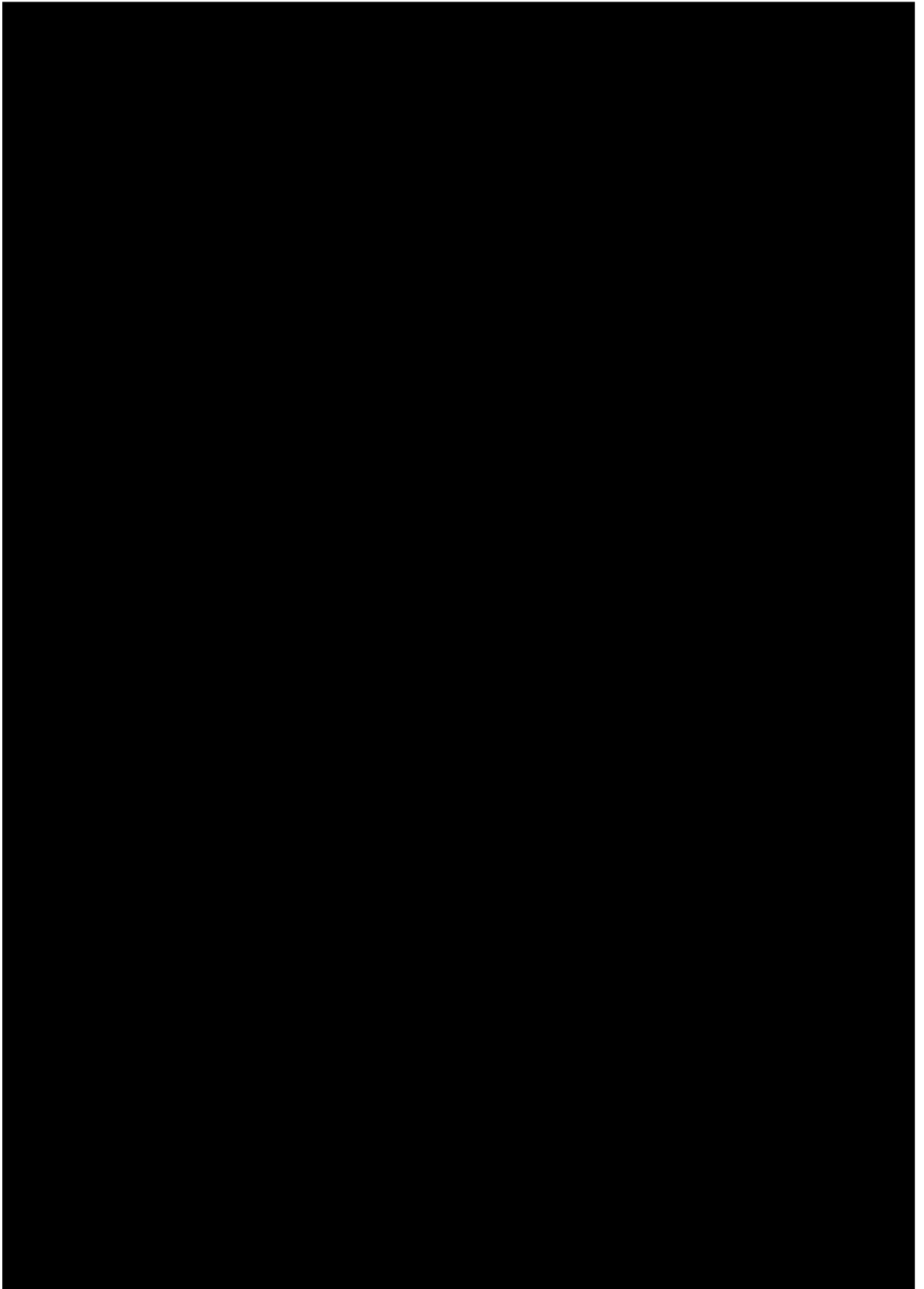


ESCOS Co.,Ltd.



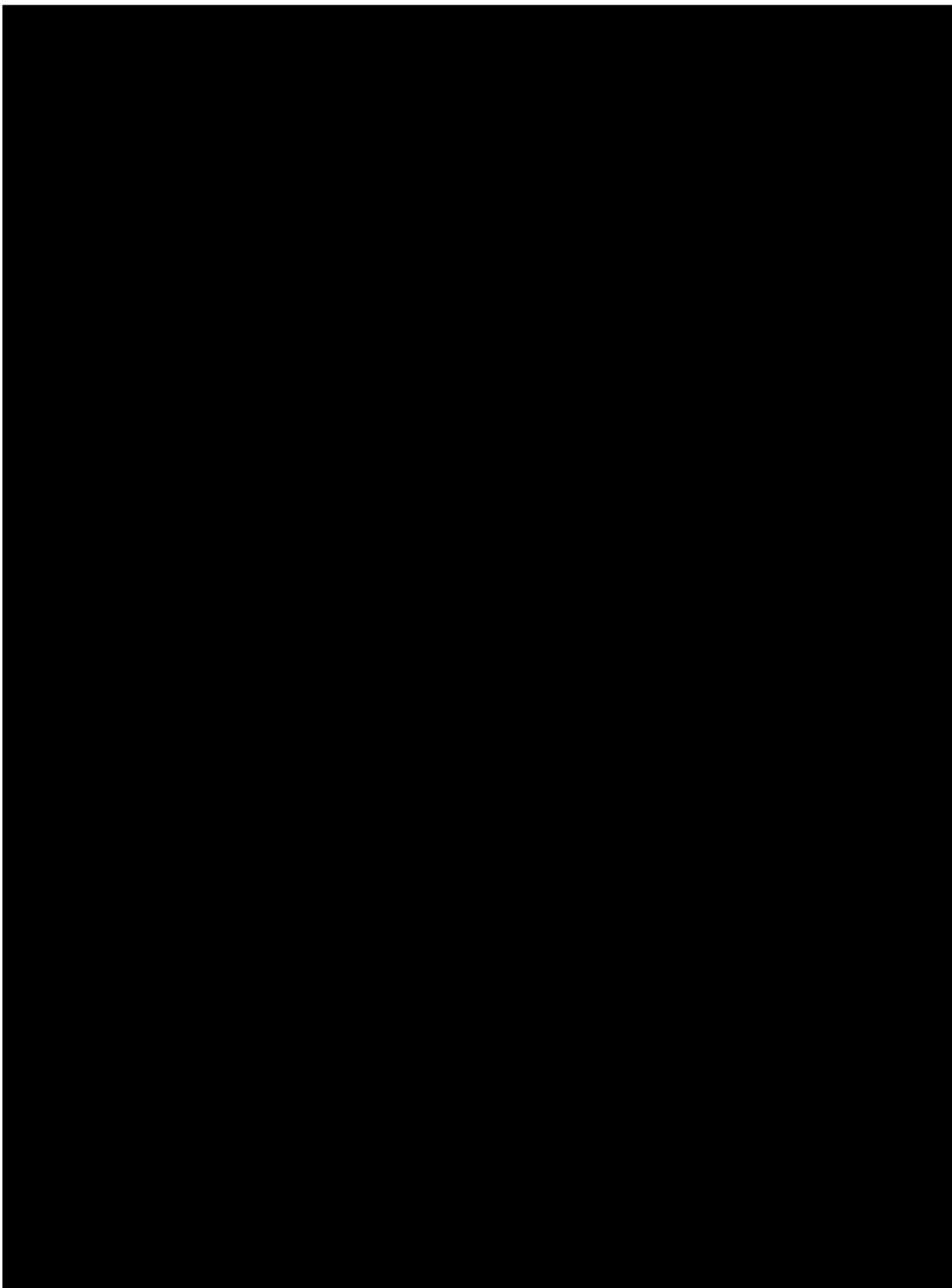


ESCOS Co.,Ltd.



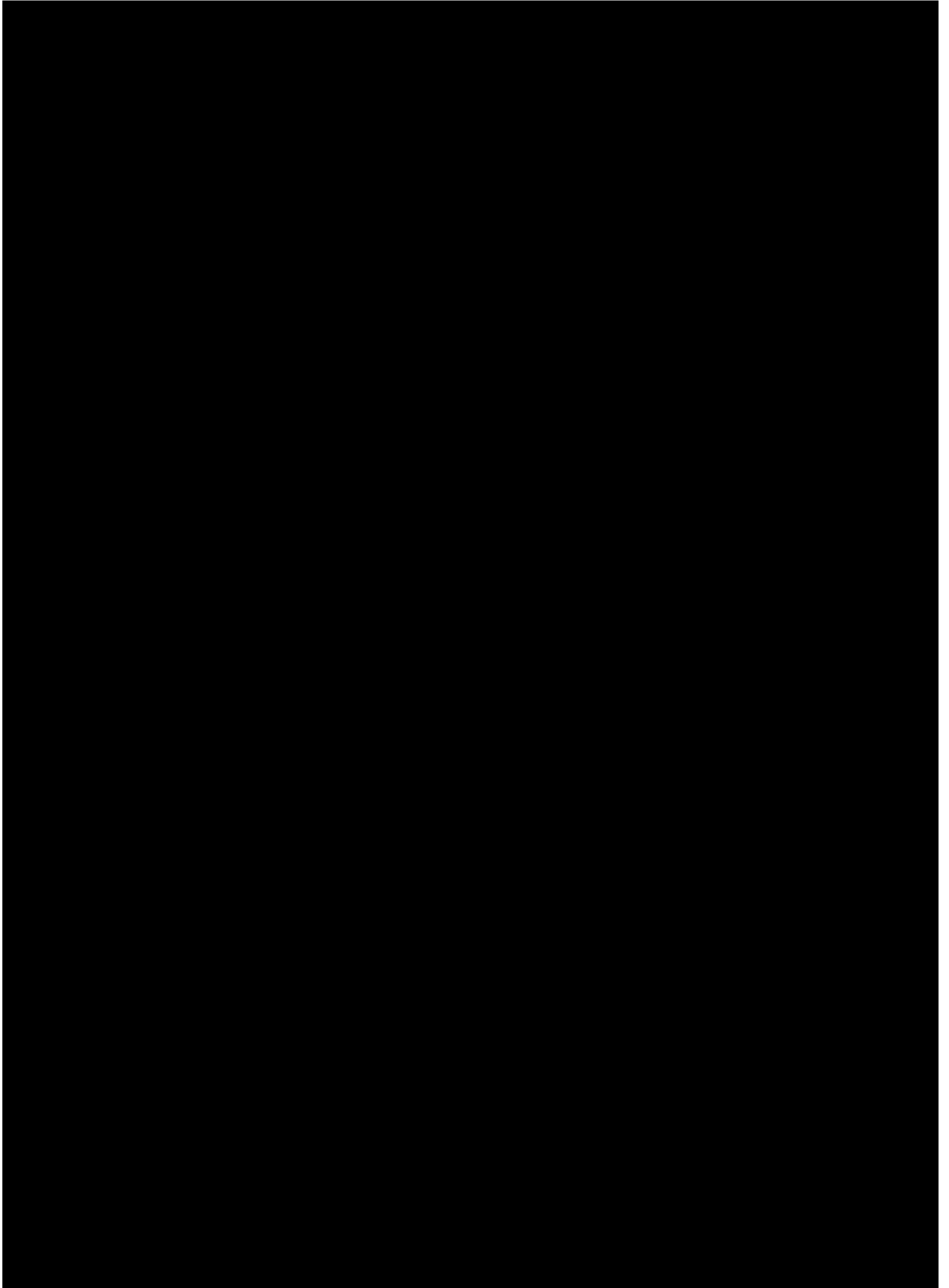


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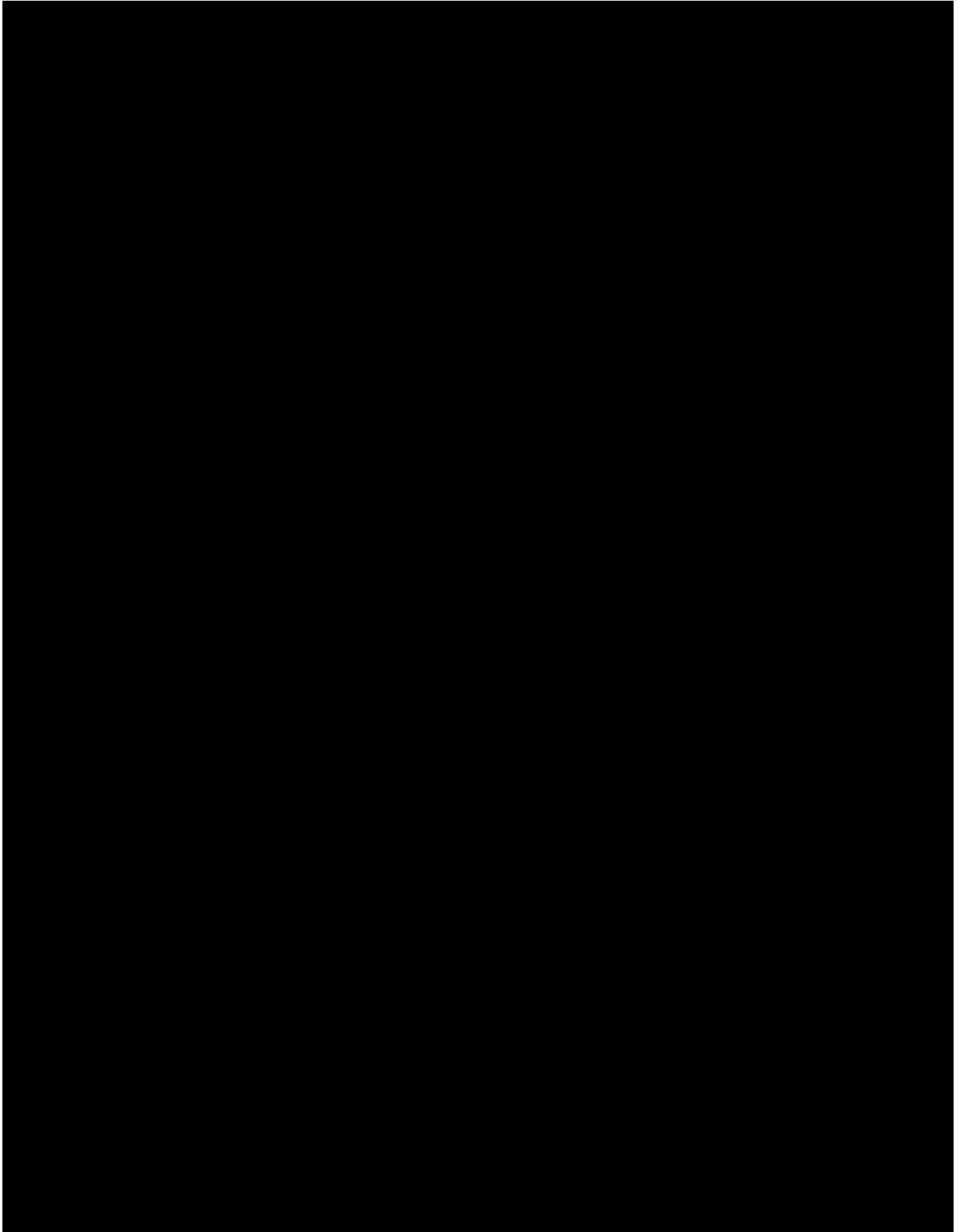
ESCOS Co.,Ltd.





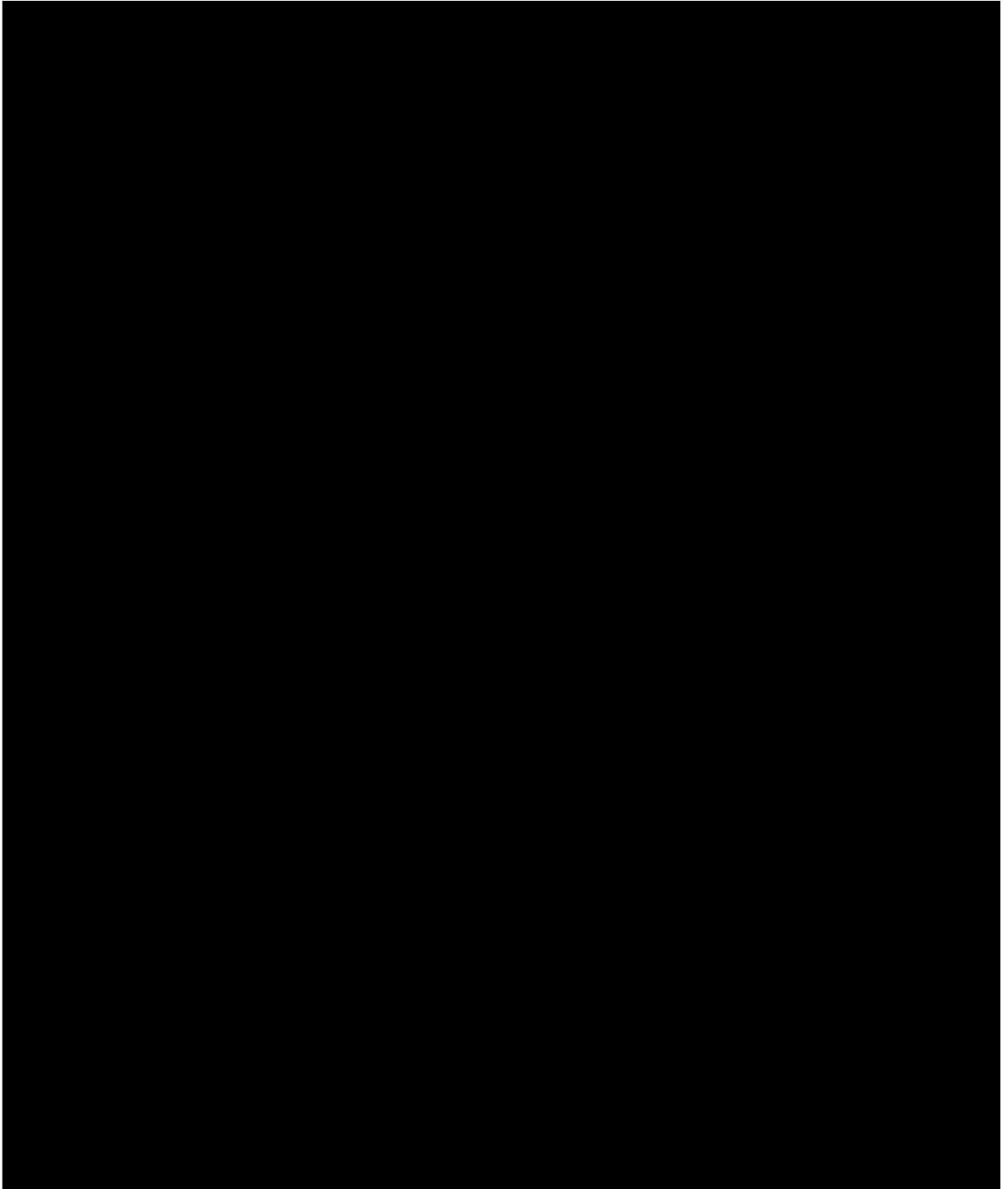


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บริษัท เอสคอส จำกัด

เลขที่ 18/156 เวย์รา บิสเนท ถนนร่มเกล้า แขวงคลองสามประเวศ

เขตลาดกระบัง กรุงเทพฯ 10520